



## SEQUENCE LISTING

&lt;110&gt; GUEGLER, Karl et al

<120> ISOLATED HUMAN TRANSPORTER PROTEINS,  
NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS,  
AND USES THEREOF

&lt;130&gt; CL001010

&lt;140&gt; 09/776,705

&lt;141&gt; 2001-02-06

&lt;160&gt; 60

&lt;170&gt; FastSEQ for Windows Version 4.0

&lt;210&gt; 1

&lt;211&gt; 1822

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 1

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 <212> PRT

<213> Rattus norvegicus

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Asp Tyr Ala Asp Glu His Pro Gly Thr Thr Ser Phe Gly Met Ser  
65 70 75 80  
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85 90 95  
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130 135 140  
Ala Phe Gly Trp Pro Gly Lys Ile Gly Ala Phe Ile Ser Ile Thr Met  
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Gln Asn Ile Gly Ala Met Ser Ser Tyr Leu Phe Ile Ile Lys Tyr Glu  
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180 185 190  
Glu Trp Tyr Leu Asn Gly Asn Tyr Leu Val Leu Phe Val Ser Val Gly  
195 200 205  
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245 250 255  
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Tyr Ser Glu Leu Lys Asp Arg Ser Arg Arg Lys Met Gln Thr Val Ser  
355 360 365  
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370 375 380  
Phe Gly Tyr Leu Ser Phe Tyr Gly Glu Val Glu Asp Glu Leu Leu His  
385 390 395 400  
Ala Tyr Ser Lys Val Tyr Thr Phe Asp Thr Ala Leu Leu Met Val Arg  
405 410 415  
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420 425 430

Pro Ile Arg Thr Ser Val Ile Thr Leu Leu Phe Pro Arg Arg Pro Phe  
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 Ser Trp Val Lys His Phe Gly Ile Ala Ala Ile Ile Ile Ala Leu Asn  
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 Ile Gly Ala Ser Ser Ala Thr Met Leu Ile Phe Ile Leu Pro Ala Ala  
 485 490 495  
 Phe Tyr Leu Lys Leu Val Lys Lys Glu Pro Leu Arg Ser Pro Gln Lys  
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 Ile Gly Ala Leu Val Phe Leu Val Thr Gly Ile Ile Phe Met Met Gly  
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 <213> Human

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 Val Gly Lys Leu Ala Ala Ser Gly Ser Ile Thr Met Gln Asn Ile Gly  
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 Ser Leu Leu Cys Met Val Phe Phe Leu Ile Val Val Ile Cys Lys Lys  
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Arg	Arg	Arg	Met	Met	Asn	Val	Ser	Lys	Ile	Ser	Phe	Phe	Ala	Met	Phe
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Leu	Met	Tyr	Leu	Leu	Ala	Ala	Leu	Phe	Gly	Tyr	Leu	Thr	Phe	Tyr	Glu
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	370				375						380				
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Leu	Leu	Cys	Ala	Ser	Lys	Asp	Phe	Ser	Trp	Trp	Arg	His	Ser	Leu	Ile
			405						410					415	
Thr	Val	Ser	Ile	Leu	Ala	Phe	Thr	Asn	Leu	Leu	Val	Ile	Phe	Val	Pro
	420						425					430			
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	450					455					460				
Glu	Pro	Met	Lys	Ser	Val	Gln	Lys	Ile	Gly	Ala	Leu	Phe	Phe	Leu	Leu
465				470					475						480
Ser	Gly	Val	Leu	Val	Met	Thr	Gly	Ser	Met	Ala	Leu	Ile	Val	Leu	Asp
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 <212> DNA  
 <213> Human

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<210> 7  
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 <212> DNA  
 <213> Homo sapien

<400> 7

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<210> 8  
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 <212> DNA  
 <213> Homo sapien

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<210> 9  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 9	
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ytgggattac	aggcgctgc
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<210> 10  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 10	
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<210> 11

<211> 601

<212> DNA

<213> Homo sapien

<400> 11

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<210> 12

<211> 601

<212> DNA

<213> Homo sapien

<400> 12

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cgtgccccat	ccttagcttt	ctctgctttc	tctattatat	atgcaactgc	ctgccccctc	420
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<210> 13

<211> 601

<212> DNA

<213> Homo sapien

<400> 13

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<210> 14  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

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<210> 15  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

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ggtaacatta	aaaaaaagtt	agggacttca	ggtagttaa	atatagcaaa	ttctatttct	480
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<210> 16  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

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<210> 17  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

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c	601

<210> 18  
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 <212> DNA  
 <213> Homo sapien

<220>  
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 <222> (301)...(301)  
 <223> T may or may not be present

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<210> 19  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> variation  
 <222> (301)...(301)  
 <223> A may or may not be present

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t						601

<210> 20

<211> 601

<212> DNA

<213> Homo sapien

<220>

<221> variation

<222> (301)...(301)

<223> T may or may not be present

<400> 20

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atctatcttt	atctatctat	ctctctctct	ctctatctat	ctctatctat	atctatctat	300
tatcaattta	tcctatctct	ataccctaca	tgtcctgtgt	caaaccataa	caaattatat	360
ttattcccct	aacagtacta	ttttaaatatt	tttaaaaaatc	atccatgctc	tcttttcaca	420
ggctactttc	tccccttgac	tgtctctcaa	agtcctccaa	ccctaacaca	cacgcacaca	480
cacacacaca	cacacacaca	cacacacaca	cattttctct	ctcactctgc	tcacctgggc	540
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c						601

<210> 21

<211> 601

<212> DNA

<213> Homo sapien

<220>

<221> variation

<222> (301)...(301)

<223> C may or may not be present

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aatttatattt	attcccctaa	cagtactatt	ttaatatttt	taaaaatcat	coatgccttc	240
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cgcacacaca	cacacacaca	cacacacaca	cacacacaca	ttttctctct	cactctgctc	360
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gtttgtatct	agtatgttac	tgttttctaa	aggatatctt	aaaacacttg	agtagagaat	480
aagcttttgg	agtcctgatg	acctgaattt	gagtcgtgtt	ctgtcactat	ctgtgaactt	540
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c						601

<210> 22

<211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 22  
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 tcatctatca atttatccat catctatacc ctacatgtcc tgtgtcaaac cataacaaat 180  
 tatatttatt cccctaacag tactatttta atatttttaa aaatcatcca tgccttcttt 240  
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 cttttggagt ctgatggacc tgaatttgag tctgtttctg tcaactatctg tgaacttggg 540  
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 t 601

<210> 23  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 23  
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 ctaaaggata ttttaaaaca cttgagtaga gaataagctt ttggagtctg atggacctga 240  
 atttgagtct gtttctgtca ctatctgtga acttgggaag atcactgtac tcttttgtct 300  
 rattttttca tgtataaaaa ttaccttaca aaggctattg tgaggatgaa ataaggtaac 360  
 atatggcaca taataagtgt tctgtatatg cttctctcct ccctggttct ctgcttccat 420  
 atccatgtct ctggagttgc ctgaattatt ttttaaatag gcatttataa aattataaaa 480  
 caaatatatg atgattgtga aaaactaaaa cactgcataa atatataaat taccaagaaa 540  
 agtttatgtc agtcacctc agaaataact actcataggt tttccctat gcctaattca 600  
 a 601

<210> 24  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 24  
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 aaagcatagc cactactacg cttctaaaca atggaataaa gtataaagcg gtctctcagt 180  
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 sagaaatcac ttgtatttct ctatttaaca actctacatt tagaacactt aattttctca 360  
 atcccctaaa aaattaacat ttactgcaga tgttttcaca ttaacagatt aatgtctgga 420  
 tcattctgaa tttttgaaga ccaaacatgt taacatcact gacatcactg aaaaccagca 480  
 attaatagct gtaacattga atggtacctc accaagccag ctaatcagaa atatctcctg 540  
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 g 601

<210> 25  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> variation  
 <222> (301)...(301)  
 <223> G may or may not be present

<400> 25  
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 caagaaatct ttcacaagag tagataatca ttcattgtat acttacctag atgctcatga 240  
 aattttgcca ctttatataa ttcttagtt agccaaaagg agagtaagat gaagaggggg 300  
 gaaaaaaaaa acttctttga caaagatgga gagaagctgt catctcttgt attcttttat 360  
 caatccagga agccttttgt tttgacaata agtggctctga gacttttgtt actcctcaga 420  
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 ctgcagatct gccctttgat tctgccatct ctgcagctggc ccatgccctt tgttgccaga 540  
 ctactgcca agttatagac actaacacag gcacactgag tatgggctat gttgatttat 600  
 a 601

<210> 26  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> variation  
 <222> (301)...(301)  
 <223> A may or may not be present

<400> 26  
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 tgggtgggct tgaaaaaggc gtgatgcata aatatttaca gttgtaggca aaattgtaat 120  
 gttatgtata tgaatacata ttcatTTTTT cagggagaag gctttagat ttcatcaaga 180  
 aatctttcac aagagtagat aatcattcat gtatcactta cctagatgct catgaaattt 240  
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 aaaaaacttc tttgacaaaag atggagagaa gctgtcatct cttgtattct tttatcaatc 360  
 cagggaagcct ttggttttga caataagtgg tctgagactt tgtgtactcc tcagataggt 420  
 ccggaggac tagatttgtg cccatctgca gaaaaccaga ggggatatat tgactctgca 480  
 gatctgccct ttgattctgc catctctcag ctggcccatg ccttttgttg ccagactact 540  
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<210> 27  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 27  
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 agataatcat tcatgtatca cttacctaga tgctcatgaa attttgccac tttatataat 180  
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 aaagatggag agaagctgtc atctcttcta ttcttttata aatccaggaa gccttttgtt 300  
 ytgacaataa gtggtctgag acttttgtta ctctcagat aggtcccga ggactagatt 360  
 ggtgcccatac tgcagaaaac cagaggggat atattgactc tgcagatctg ccctttgatt 420  
 ctgccatctc tcagctggcc catgcccttt gttgccagac tactgcccac gttatagaca 480  
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agaactgcag cttcactgta aactttggag caggatttaa cacagaatca gccctgatac 600  
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<210> 28

<211> 601

<212> DNA

<213> Homo sapien

<400> 28

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ccattaagct gtcacatttt ccatttttagc aatgtcaagc tacctcttta tcattaaata 180  
tgaactacct gaagtaatca gagcattcat gggacttgaa gaaaatactg ggtatgtctt 240  
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ygtctctca cttctagaga atggtacctc aatggcaact acctcatcat atttgtgtct 360  
gttggaaatta ttcttccact ttctgtcctt aaaaatttag gtaaagatat tttctaactg 420  
gaaataattt tatttttatt tcacatttaa ataggtttagc taattgtaga tgccatattc 480  
accttccaaa atgtctcttc taacttctag gttatcttgg ctataccagt ggattttctc 540  
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t 601

<210> 29

<211> 601

<212> DNA

<213> Homo sapien

<400> 29

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caataatctg gcatttagaa cagcagagga gagtcccaga tgagaaacaa gaaggctata 300  
yccatattca catgaatcag ccattctctc ttacacattc caccatttaa gagaggacaa 360  
gaacagtggg attaaagaag aaatcctcct ctctaggccc ctgacaaaag agggaatttc 420  
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aaaaaaagtt ttgaagaccc atgtcacctt agtttgaaga aataaggaaa tgatcatctt 540  
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t 601

<210> 30

<211> 601

<212> DNA

<213> Homo sapien

<400> 30

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catgctttta tcagaaaggt gggaatcagc ccaccacagc actaccttat cttctttctc 180  
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t 601

<210> 31  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 31  
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 tggctgggaa caaaggatat gaactcatta tagctgtttt cctctttcct ttaagggagg 300  
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 actttcaagt attttgatgt ctttgattta ctttgaaaat tacatgtagc agttactcca 480  
 gaagcctgac aattgatctt tggcagccag gttccttcta gaatggtttt cagaagcttt 540  
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 t 601

<210> 32  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 32  
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 gttcttttcc tcatttaaag tcactctcatt atgaaatgca aaagctttct atgttaggag 540  
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 g 601

<210> 33  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 33  
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 ctttcaagta ttttgatgtc tttgatttac tttgaaaatt acatgtagca gttactccag 180  
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<210> 34  
 <211> 601  
 <212> DNA



<213> Homo sapien

<400> 34

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aaaaagtgatt	tttttttgta	agtttaaaaa	acaaagcttg	gtgttctttc	tttttccagt	600
c						601

<210> 35

<211> 601

<212> DNA

<213> Homo sapien

<400> 35

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t						601

<210> 36

<211> 601

<212> DNA

<213> Homo sapien

<400> 36

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<210> 37

<211> 601

<212> DNA

<213> Homo sapien

<400> 37

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g						601

<210> 38  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

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tattttgtta	tactaaatga ttctctaaga aagaggacat gacagaattt ccttcaatct 180
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cagtgtatca	atataaatat atttttgtat aaacctcctt ttaaagtttt taacttaatt 420
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caggagtagg	ccaccatttg cttagggttt ttttctattt gactaatatt tgactattaa 540
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<210> 39  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

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gcatgtatga	caaatttgtg aggaaaagat tcaggagtag gccaccattt gcttaggttt 180
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metttttgtc	tgatcttgag gtgaaaatcc aactacgctt gattccatag atattttctt 360
gttattttgtg	cttgaggatcc tgaatgaagg tgttttcaag tagggctgca tcttcgtctt 420
agagtagtac	ccactgggag accatctaaa aattatacta atttatccct gcacgttact 480
tatacttatt	ttaatgagtt tcataagaca agcaaaaact tgaaagagcc caaaaatata 540
tgttttagtg	tgggtgatgga gtcatagttg ttgagcttga aaaaatggta gcaatcattc 600
a	

<210> 40  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 40	
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tttcactact	ttttgtctga tcttgagggtg aaaatccaac tacgcttgat tccatagata 180

ttttcttggt	atttgtgott	ggagtcctga	atgaagggtg	tttcaagtag	ggctgcatct	240
tctgtttaga	gtagtacctc	ctgggagacc	atctaaaaat	tatactaatt	tatccctgea	300
yggttacttat	acttatttta	atgagtttca	taagacaagc	aaaaacttga	aagagcccaa	360
aaatatctgt	tttagtgtgg	tgatggagtc	atagttgttg	agcttgaaaa	aatggtagca	420
atcattcacc	ctagagttta	cacactgggt	ttgtaacctg	catcaggagt	ggctgcacag	480
gtagggacag	gggaggtggt	aggctgggag	agacaatatg	tggggcttgg	gtctctcacc	540
cccttcaaca	agagcacctt	ggtctctgtc	tgatttgtaa	ttgcttctgt	acagcgagaa	600
t						601

<210> 41

<211> 601

<212> DNA

<213> Homo sapien

<400> 41

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tgacagttac	ttatacttat	tttaatgagt	ttcataagac	aagcaaaaac	ttgaaagagc	180
ccaaaaatat	ctgttttagt	gtggtgatgg	agtcatagtt	gttgagcttg	aaaaaatggt	240
agcaatcatt	catcctagag	ttacacact	gggtttgtaa	cctgcacag	gagtggctgc	300
rcaggtaggg	acaggggagg	tggtaggctg	ggagagacaa	tatgtggggc	ttgggtctct	360
catcccttcc	aacaagagca	ccttgggtct	tgtctgattt	gtaattgctt	ctgtacagcg	420
gagatagatt	tatcacaatg	taaatgagct	tgagaggctc	tttattttgt	attatacctt	480
ctgcaacggt	atcagcttca	ggacctcttt	gttcatttga	atgaagggtg	catagctaat	540
gagctcagag	gcaagaccag	agggtgctgg	attcccagge	ctaggtcttt	tcctctgttc	600
t						601

<210> 42

<211> 601

<212> DNA

<213> Homo sapien

<400> 42

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gectggattc	ccaggcctag	gtcttttctc	ctgttctgtg	ttctctctat	aaaatggtgc	180
cataagtgac	ctgtgctgat	ttgacaacac	caagcggttt	cattctcttt	ttctgtttgt	240
aggagaagtt	gaagatgaat	tacttcatgc	ctacagcaaa	gtgtatacat	tagacatccc	300
ycttctcatg	gttcgcctgg	cagtccttgt	ggcagtaaca	ctaactgtgc	ccattgtcct	360
cttcccagta	agtacataag	actttgatga	aagaaacctc	cttgacccca	taaattagta	420
catgtgttct	accttcattt	tgatttaatt	atagggtgag	tttgcaattg	caatgcctga	480
ggatattatt	ttcctatagc	attttgagtc	acttaaaatt	ggccatttaa	tgtgtagata	540
gagcaagtag	tttcagggtg	tatttttata	gtgtaggaaa	aaaatcataa	aacttatttt	600
t						601

<210> 43

<211> 601

<212> DNA

<213> Homo sapien

<400> 43

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gctggtagtg	aagatttggg	ctgtgtgagt	taaaaccacc	acctaaggat	aaacacaggt	180
cttcaccctc	ctgccagctc	ctgtttcata	aacctggaat	ttactcattc	atttgagggg	240
gaaaaaata	agtgacacag	taaccagcac	tgtcctggac	ataatgttcc	atacagggct	300
kgcatatgaa	gactatttct	ataatgacac	tgtggtcact	ttaaatgcag	cttgtgtgct	360

gaaatatatt	ttggcacatt	cctttttcat	gagtgcattga	aatcagatcc	gtactactat	420
ggtggctaatt	atcttactct	taaatcatgt	cttgccctcta	atatactga	aagtatttca	430
gatgacatac	acatagcttt	agcctaaaat	cagctccgtc	ttgggtacaa	gacagaagac	540
aactataaac	agaaggata	cgatagggtg	aaattgccag	gcaaacaact	tcactgagaa	600
a						601

<210> 44  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 44						
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tgctcttcat	tatgtatttc	cactcaacat	tagcatttat	gaaacatttt	gcacattatc	180
ctgtccctac	ccttgcaatg	ttacatttat	ataatctgtg	taagtgtccc	actgccccac	240
agagtcataa	gtccctggga	cttggtgatg	tgcacagtga	ctggcacaga	gggtgagctc	300
ygtcgtgctt	gggaagaaaa	atgggtcttca	aatgaatctt	gccttgtctt	gaaatgtata	360
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cagctggggt	gaggatctgg	gctaaatgaa	ccaaacctcc	ctatacatga	aggatacaca	480
gagatgggtg	cagagagtgg	tcacttccgt	gagtggatct	caatcaagtc	ctctgaagct	540
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t						601

<210> 45  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 45						
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cttcattatg	tatttccact	caacattagc	atttatgaaa	cattttgcac	attatcctgt	180
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gccttttcta	gcaaaagcat	agacactctt	tcctttgggt	acatgtgcta	cgaattcagc	420
tgggttgagg	atctgggcta	aatgaaccaa	acctccctat	acatgaagga	tacacagaga	480
tggtgacaga	gagtggtcac	ttccgtgagt	ggatctcaat	caagtcctct	gaagctaaat	540
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t						601

<210> 46  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 46						
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agaaaaatga	ctaactgctg	tccttcatta	tgtattttcca	ctcaacatta	gcatttatga	120
aacattttgc	acattatcct	gtcctcacc	ttgcaatgtt	acattttatat	aatctgtgta	180
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tgacatgtgc	tacgaattca	gctgggttga	ggatctgggc	taaatgaacc	aaacctccct	420
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atcaagtcct	ctgaagctaa	attcaatttt	ttttctttac	taaaatgata	aaagttgtta	540

ttggcgcttt tgcttggtta tttcgtataa cttagggctc agattttcaa tgtgtcaaat	600
g	601

<210> 47  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 47	
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tcataagtcc ctgggacttg gtgatgtgca cagtgaactg cacagagggt gagctctgtc	120
gtgcttgga agaaaaatgg tcttcaaag aatcttgct tgccttgaaa tgtataaact	180
gccttttcta gcaaaagcat agacactctt tcccttggtg acatgtgcta cgaattcagc	240
tgggttgagg atctgggcta aatgaaccaa acctccctat acatgaagga tacacagaga	300
wggtgacaga gagtgggtcac ttccgtgagt ggatctcaat caagtcctct gaagctaaat	360
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ctgacagttt atttcattta aggaactctt caccagtaag tttatttact tgccttgata	540
tctccacaca ttaataataa aactaacaaa acctaactcg aattaaaatc tatcagcttt	600
a	601

<210> 48  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 48	
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aagtccctcg aagctaaatt caattttttt tctttactaa aatgataaaa gttgttattg	120
gcgcttttgc ttgtttattt cgtataactt agggctcaga ttttcaatgt gtcaaagtct	180
gactcacagc atggttctcc tgacagttta tttcatttaa ggaactcttc accagtaagt	240
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rttaaaatct atcagcttta ggcattattt tgtgttctcc ttctttcaac atggtaactg	360
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tattatcttt cttttttcca atcagggttag ttttttctt tttagtataa ggtgcatagt	480
aactgcttgt agtatttgtt gaacaagtga ataaatgaaa tgaattaagg tagtgttttc	540
actagcagcc caacatttct ttctctctta gtagtggttg gggatcagc tatggaatgg	600
c	601

<210> 49  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 49	
gaaatgaatt aaggtagtgt tttcactagc agcccaacat ttctttctct cttagtagtg	60
ggtggggtat cagttatgga atggcacctc cttccagagg actgatcatg tcattttcag	120
cttatgcttc cttttatgca gtaaagtttc catattttca taaagaacaa gaaaccaa	180
aatcctaata gatataataa gaacacacag atgaaaattt cacctgccat gcctttgaaa	240
aaagatccct agctacttgt atttcatctt ataattaaaa tcagtctttt cacttatgtt	300
ktcttcagat ctctgtttt gaagtgtata tagatatcaa catagaaatg cagcgtatat	360
tgctatcaac tgcagtggag cagtgatctg taggttttcc aacatccttg ccttaagcaa	420
acctgcaaaa tcaaagtgtg agctacgtct aaacaatggg agaggctttt ttttttttt	480
taagagttag aactaagact ctcaattcct cctgtgcctc cacatttttg accttcacat	540
tgggcccttg catcagaata cagcaccctc taacaggctc ctgttcagga ctctttctct	600
g	601

<210> 50  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 50  
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 ttatgcttcc ctttatgcag taaagtttcc atatttccat aaagaacaag aaaccaata 180  
 atcctaattg atatataatg aacacacaga tgaattttc acctgccatg cttttgaaaa 240  
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 ycttcagatc tctgttttg aagtgtatat agatatcaac atagaaatgc agcgtatatt 360  
 gctatcaact gcagtggagc agtgattcgt aggttttcca acatccttgc ctttaagcaa 420  
 cctgcaaaat caaagtgtga gctacgtcta aacaatggga gaggcctttt ttttttttt 480  
 aagagttaga actaagactc tcacttctc ctgtgcctcc acatttttga ccttcacatt 540  
 gggccctgc atcagaatac agcaccctc aacaggctcc tgttcaggac tctttctctg 600  
 g 601

<210> 51  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 51  
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 gacttggtgc agtaaagaaa aaggcacata gctaagtga agagcagatg aggccttggc 120  
 ggaatcagcc agtggtctgc ctagcaaaag gtaaacagaa ctgctggggg cttttggtcc 180  
 taggctcact actcagggag gcactttaac atggaatgac cagcaagttt ccttccctgat 240  
 cttttccacc accaccacaa gcctagtacc tccctccctc tttgctctgt tgcctcttc 300  
 rggaatgcac tggaaaccac cttcagttct gtttggatt ttcctattcc ttattcagaa 360  
 agaggaagaa gcttttgcat ttactccaac cgctctacct attattccca taaactttct 420  
 gtgatctcat atcattaggc caaatgttaa tctttctggg agccaggaga ctgctttcac 480  
 attcagaggc cctggacata taggactgcc tctaaactcac tctaaactcag cttattgact 540  
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 c 601

<210> 52  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 52  
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 gtttccctcc tgatcttttc caccaccacc acaagcctag tacctccctc cctctttgct 180  
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 socataaact ttctgtgatc tcatatcatt aggccaaatg ttaattcttc tgggagccag 360  
 gagactgctt tcacattcag aggccttggc catataggac tgccctctaac tcaactctaac 420  
 tcagcttatt gacttgaatg cactttttta acaagtgcact aaaaaacaaa ctgtgactat 480  
 tctctgaaaa tgagcctata tctcatactt atttattctg ttttaactctg tgaaacaaat 540  
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 c 601

<210> 53  
 <211> 601  
 <212> DNA

<213> Homo sapien

<400> 53

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tactccaaac	gttctaacct	ttattcccat	aaactttctg	tgatctcata	tcattaggcc	180
aaatgttaat	ctttctggga	gccaggagac	tgctttcaca	ttcagaggcc	ctggacatat	240
aggactgcct	ctaaactcact	ctaaactcagc	ttattgactt	gaatgcacct	ttttaacaag	300
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agtttccttt	tcagaatgag	tttcataatg	ttcactaatc	caatttttaa	aatcctttac	600
a						601

<210> 54

<211> 601

<212> DNA

<213> Homo sapien

<400> 54

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gcctctaaact	cactctaaact	cagcttattg	acttgaatgc	acctttttta	caagtgacta	180
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cagcctaaac	agatggcctt	aatttttggt	ggagtgggtat	gaaaggaatg	tcacatgaga	600
a						601

<210> 55

<211> 601

<212> DNA

<213> Homo sapien

<400> 55

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cgctacttta	tttcagctgc	taaaataggg	ctgaaatctg	tcaaggatcc	tgaagggaag	120
gataagattc	ctactattca	atttaattta	agcttttatt	cagtgcctgc	tgtgtgcaca	180
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ttttaacaat	aaattctgaa	aactaagaaa	gtgaaagcat	aaaatattgt	cttataaaat	600
a						601

<210> 56

<211> 601

<212> DNA

<213> Homo sapien

<400> 56

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tcagtgtgtg	cccttaatgt	ctcatccagt	ctgatgagac	atgttttgtg	atcaacaagg	180
gttttactat	gtttcttaat	tatgtgtctt	gcctgttata	tctttctgac	cgagattatt	240
tttaacaata	aattctgaaa	actaagaaa	tgaaagcata	aaatattgtc	ttataaaata	300
sqccaaggaa	aaaatgacac	tccatttcaa	atatcaaaa	ttagcatcaa	gactgcacaa	360
gatgaatgta	cagtcattgt	ttgettacaa	atgtggacat	attctgagaa	atgcatcttt	420
aggcaatttt	gtcattgtgc	aaacaccata	gattgtactt	gcagcctaata	tgggtggagcc	480
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a						601

<210> 57  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 57						
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gtgagtttca	gaaaggcttc	aatttggtca	acccaaactc	acgcctcatt	aatgatgga	600
c						601

<210> 58  
 <211> 601  
 <212> DNA  
 <213> Homo sapien

<400> 58						
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aaatagaaaa	tacacatagt	tcagaaaaat	gaatcaatgt	acaagaacca	aaaatcaaaa	300
mtgggctaga	actttcttgt	agcagagaaa	ggggacatat	ttctgaaact	caaatgattc	360
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